

SYSTEM, METHOD, AND APPARATUS FOR ESTIMATING LIQUID DELIVERY

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. patent application Ser. No. 15/467,196, filed Mar. 23, 2017 and entitled System, Method, and Apparatus for Estimating Liquid Delivery, now U.S. Publication No. US 2017-0224909-A1, published Aug. 10, 2017 (Attorney Docket No. U91), which is a continuation of U.S. patent application Ser. No. 13/723,251, filed Dec. 21, 2012 and entitled System, Method, and Apparatus for Estimating Liquid Delivery, now U.S. Pat. No. 9,636,455, issued May 2, 2017 (Attorney Docket No. J81) which is a Non-Provisional which claims priority to and the benefit of the following:

[0002] U.S. Provisional Patent Application Ser. No. 61/578,649, filed Dec. 21, 2011 and entitled System, Method, and Apparatus for Infusing Fluid (Attorney Docket No. J02);

[0003] U.S. Provisional Patent Application Ser. No. 61/578,658, filed Dec. 21, 2011 and entitled System, Method and Apparatus for Estimating Liquid Delivery (Attorney Docket No. J04);

[0004] U.S. Provisional Patent Application Ser. No. 61/578,674, filed Dec. 21, 2011 and entitled System, Method and Apparatus for Dispensing Oral Medications (Attorney Docket No. J05);

[0005] U.S. Provisional Patent Application Ser. No. 61/651,322, filed May 24, 2012 and entitled System, Method, and Apparatus for Electronic Patient Care (Attorney Docket No. J46); and

[0006] U.S. Provisional Patent Application Ser. No. 61/679,117, filed Aug. 3, 2012 and entitled System, Method, and Apparatus for Monitoring, Regulating, or Controlling Fluid Flow (Attorney Docket No. J30), each of which is hereby incorporated herein by reference in its entirety.

[0007] U.S. patent application Ser. No. 13/723,251, filed Dec. 21, 2012 and entitled System, Method, and Apparatus for Estimating Liquid Delivery, now U.S. Pat. No. 9,636,455, issued May 2, 2017 (Attorney Docket No. J81) claims priority to, benefit of, and is also a Continuation-In-Part application of the following:

[0008] U.S. patent application Ser. No. 13/333,574, filed Dec. 21, 2011 and entitled System, Method, and Apparatus for Electronic Patient Care, now U.S. Publication No. US 2012-0185267-A1, published Jul. 19, 2012 (Attorney Docket No. I97), and

[0009] PCT Application Serial No. PCT/US11/66588, filed Dec. 21, 2011 and entitled System, Method, and Apparatus for Electronic Patient Care (Attorney Docket No. I97WO), both of which are hereby incorporated herein by reference in their entireties.

[0010] U.S. patent application Ser. No. 15/467,196, filed Mar. 23, 2017 and entitled System, Method, and Apparatus for Estimating Liquid Delivery, now U.S. Publication No. US 2017-0224909-A1, published Aug. 10, 2017 (Attorney Docket No. U91) may also be related to one or more of the following patent applications filed on even date herewith, all of which are hereby incorporated herein by reference in their entireties:

[0011] U.S. patent application Ser. No. 13/723,238, filed Dec. 21, 2012 and entitled System, Method, and Apparatus

for Clamping, now U.S. Pat. No. 9,759,369, issued Sep. 12, 2017 (Attorney Docket No. J47);

[0012] U.S. patent application Ser. No. 13/723,235, filed Dec. 21, 2012, and entitled System, Method, and Apparatus for Dispensing Oral Medications, now U.S. Pat. No. 9,400,873, issued Jul. 26, 2016 (Attorney Docket No. J74);

[0013] PCT Application Serial No. PCT/US12/71131, filed Dec. 21, 2012 and entitled System, Method, and Apparatus for Dispensing Oral Medications (Attorney Docket No. J74WO);

[0014] U.S. patent application Ser. No. 13/724,568, filed Dec. 21, 2012 and entitled Syringe Pump, now U.S. Pat. No. 9,295,778, issued Mar. 29, 2016 (Attorney Docket No. J75);

[0015] U.S. patent application Ser. No. 13/725,790, filed Dec. 21, 2012 and entitled System, Method, and Apparatus for Infusing Fluid, now U.S. Pat. No. 9,677,555, issued Jun. 13, 2017 (Attorney Docket No. J76);

[0016] PCT Application Serial No. PCT/US12/71490, filed Dec. 21, 2012 and entitled System, Method, and Apparatus for Infusing Fluid (Attorney Docket No. J76WO);

[0017] U.S. patent application Ser. No. 13/723,239, filed Dec. 21, 2012 and entitled System, Method, and Apparatus for Electronic Patient Care, now U.S. Pat. No. 10,108,785, issued Oct. 23, 2018 (Attorney Docket No. J77);

[0018] U.S. patent application Ser. No. 13/723,242, filed Dec. 21, 2012 and entitled System, Method, and Apparatus for Electronic Patient Care, now U.S. Publication No. US 2013-0317753-A1, published Nov. 28, 2013 (Attorney Docket No. J78);

[0019] U.S. patent application Ser. No. 13/723,244, filed Dec. 21, 2012 and entitled System, Method, and Apparatus for Monitoring, Regulating, or Controlling Fluid Flow, now U.S. Pat. No. 9,151,646, issued Oct. 6, 2015 (Attorney Docket No. J79);

[0020] PCT Application No. PCT/US12/71142, filed Dec. 21, 2012 and entitled System, Method, and Apparatus for Monitoring, Regulating, or Controlling Fluid Flow (Attorney Docket No. J79WO);

[0021] PCT Application No. PCT/US12/71112, filed Dec. 21, 2012 and entitled System, Method, and Apparatus for Estimating Liquid Delivery (Attorney Docket No. J81WO); and

[0022] U.S. application Ser. No. 13/723,253, filed Dec. 21, 2012 and entitled System, Method, and Apparatus for Electronic Patient Care, now U.S. Publication No. US 2013-0191513-A1, published Jul. 25, 2013 (Attorney Docket No. J85).

BACKGROUND

Relevant Field

[0023] The present disclosure relates to pumps. More particularly, the present disclosure relates to a system, method, and apparatus for liquid delivery using a syringe pump.

Description of Related Art

[0024] Syringe pumps are used in a variety of medical applications, such as for intravenous delivery of liquid medications, for example a patient in an intensive-care unit (ICU), for an extended length of time. Syringe pumps may be designed so that needles, tubing, or other attachments are